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| 10/681,348 | 10/09/2003 | Yong Chae Jung | 8733.923.00-US | 8316 |

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| EXAMINER | |
|---|---|
| MA, CALVIN | |

| ART UNIT | PAPER NUMBER |
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| 2629 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/681,348 | JUNG ET AL. | |
| | Examiner | Art Unit | |
| | CALVIN C. MA | 2629 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *01 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *28-31,34-36,38,40-43,46-48,51,52,54 and 56-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *28-31,34-36,38,40-43,46-48,51,52,54 and 56-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## *DETAILED ACTION*

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 28-30, 34-36, 40-42, 46-48, 50-51, 54, and 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowie USP 5847690 in view of Perski et al. USP 6762752, Komatsu et al. USP 5657011, and Mackey USP 7463246.

As to claim 28, Bowie et al. teach an LCD device including a touch panel (A unitary display and sensing device integrates liquid crystal display module elements of a liquid crystal display module for detecting input on a flat panel display screen with the capability for digitizing the detected inputs (abstract)) comprising:

an LCD panel (liquid crystal module) having first (color filter plate Fig.2 (10)) and second substrates (active matrix plate Fig.2 (25)) facing each other, and a liquid crystal layer (liquid crystal Fig.2 (16)) between the first and second substrates;

a thin film transistor array on the first substrate (liquid crystal material and an active matrix plate upon which an array of thin film transistors and picture elements

(pixels) have been formed and which functions to cause the liquid crystal material to display shapes of variable opacity in response to an electric field created between two transparent conductors (Col. 1, Lines 56-61));

a plurality of pixel electrodes electrically connected to respective thin film transistors of the thin film transistor array (liquid crystal display module 1, is a patterned material which is employed to prevent light from impinging on the thin film transistors used to switch the pixels on the active matrix plate 25. In addition, black matrix material 11 is also used to cover the edges of the pixel electrodes where distortions in the electric field applied across a liquid crystal display (Col. 1, lines 30-36));

an input sensor (capacitive touch sensor Fig.3B (30)) having first and second coil arrays formed of a transparent electrode (The current attributable to area K 310 on sensing electrode L 311 will flow to node O 312 and the current attributable to area M 313 on sensing electrode N 314 will flow to node P 315. Area K 310 is much larger than area M 313, so the current flowing to node O 312 will be larger than the current flowing to node P 315, which is determinative of the location of the object relative to the center of the array of sensing electrodes (Col. 5, line 63 to Col. 6, line 3) where K and M represent the first and second coil arrays, the sensor (capacitive touch sensor Fig.3B (30)) integrated with any one of the first and second substrates in the LCD panel (LCD module Fig.2);

a light-shielding layer (i.e. the black matrix area is a layer of material that coexist on the same plane as the sensor) and a color filter layer corresponding to the pixel electrodes (color filter array Fig.2 (102));

an overcoat layer on the color filter layer and the light light-shielding layer (modified liquid crystal display module elements may include but are not limited to the light shielding layer for the color filters, the common voltage element and the color filter plate (Col. 2, lines 38-41));

a common electrode on the overcoat layer (modified liquid crystal display module elements may include but are not limited to the light shielding layer for the color filters, the common voltage element and the color filter plate (Col. 2, lines 38-41));

a liquid crystal layer between the first and second substrates (generating a displacement current in response to an object touching a portion of a display screen of the liquid crystal display wherein the black matrix layer and a transparent conductive of the liquid crystal display sense the location of the object touching the display screen based upon the relative size of the displacement current generated at the point of contact between the object and the display screen) (Col. 10, Lines 40-47); and

a backlight (backlight, Fig. 1A) unit below the LCD panel (LCD module, Fig. 1A). accordingly, the prior art teaches all the claimed limitations with the exception of providing an EM sensor (i.e. even though the layer of black matrix is coplanar with the coil it is still shown to be a separate entity in Fig. 2 and therefore are on the sensor area) (see Fig. 2).

However, Bowie does not explicitly teach an EM sensor including first and second coil arrays including a plurality of coils and each of the plurality of coils has first and second open ends and wherein the first coil array is perpendicular to the second

coil array and wherein the light-shielding layer and the color filter layer are not coplanar with the EM sensor.

Perski teaches an EM sensor including first and second foil layer (42, 46 In Figure 3) including a plurality of lines (40, 42, 44, 46) and each of the plurality of line has first and second open ends (i.e. the lines are in straight grid form having two open end for each line) and wherein the first line is perpendicular to the second line array (i.e. the two lays are said to be orthogonal which is perpendicular) (see Fig. 3, Col. 9, Lines 35-62).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the dual mode EM and touch sensor control of Perski in the overall display control system of Bowie in order to allow the user multi-touch capability with both touch and stylus control (see Perski Col. 2, Lines 43-65).

Bowie and Perski do not teach coils in the EM sensor, Komatsu teaches coils in the EM sensor (see Fig. 7, Col. 7, Lines 50-65).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the coils array design of Komatsu in both of the perpendicular foil layer of Perski in order to prevent interference from noise in the periphery of a sensor surface (see Komatsu, Col. 4, Lines 43-49)

Further more Mackey teaches wherein the light-shielding layer and the color filter layer are not coplanar with the EM sensor (i.e. the production process of Mackey clearly show a separate layer deposition technique in which each layer of the material of the

capacitor sensing material and the light shielding material, also the processes shows that the color filter is not coplanar in the design) (see Fig. 1, Col. 4, Lines 4-45).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the manufacturing technique of Mackey in the overall input system of Bowie in order to remove unwanted ambient light from distracting the user (see Mackey, Col. 1, Lines 60-67).

Claims 40 and 50 are analyzed to be broader in scope as claim 28, and is covered on the same grounds.

As to claim 29, Bowie teach a controller below the backlight unit for controlling the sensor (Liquid crystal display panels are used in many electronic data handling devices, including lap-top computers, personal digital assistants, personal organizers, and point-of-sale terminals (Col. 1, lines 11-14), where the lap-top computers are including controller which can be above or below the backlight (see Fig. 2 and 6).

As to claim 30, Boie, Perski, Komatsu and Mackey teach the EM sensor includes a first transparent insulating layer over the first coil array (60) including the second substrate, wherein the first coil is formed on the second substrate (i.e. the first coil array would be foil layer 60 that would be formed on a layer that is transparent so that the display can be viewed by the viewer which forms a substrate); and

a second transparent insulating layer over the first transparent insulating layer, including the second coil array (62), wherein the second coil array is formed on the first transparent insulating layer (i.e. the foil 62 which would be the second transparent layer which is also insulated to allow the sensor the properly function) (see Perski Fig. 5, Col. 10, Lines 9-45).

As to claim 41, see discussion of claim 29 above, claim 41 is analyzed to have the same scope as claim 29 and is rejected on the same ground.

As to claims 42 and 54, Boie, Perski and Komatsu teach the EM sensor includes:

a first transparent insulating layer over the color filter layer including the first coil array, wherein the first coil array is formed on the color filter (i.e. the sensor is formed on the color filter plate 10 which is in front of the display where the actual coil layer of Komatsu and Perski would be constituted) (see Boie, Fig. 3A, Col. 4, Lines 10-48)

a second transparent insulating layer over the first transparent insulating layer including the second coil array, wherein the second coil array is formed on the first transparent insulating layer (i.e. the foil 62 which would be the second transparent layer which is also insulated to allow the sensor the properly function is formed on the transparent layer 60) (see Perski Fig. 5, Col. 10, Lines 9-45).

As to claim 51, Bowie teaches a common electrode on any one of the first and second substrates and a controller for controlling the sensor below the backlight unit

(modified liquid crystal display module elements may include but are not limited to the light shielding layer for the color filters, the common voltage element and the color filter plate (Col. 2, lines 38-41)) and a controller below the backlight unit for controlling the sensor (Liquid crystal display panels are used in many electronic data handling devices, including lap-top computers, personal digital assistants, personal organizers, and point-of-sale terminals (Col. 1, lines 11-14), where the lap-top computers are including controller which can be above or below the backlight.

As to claims 34-36, 46-48, and 56-58, Komatsu teaches a electro-magnetic screen (100) in combination with a sensor PCB (110) wherein first coil opening is electrically controlled to the ground voltage (COM) and second coil opening is electrically controlled to a MUX (110) where the MUX control the coil to be switched and therefore the voltage is applied (see Fig. 8, Col. 8, Lines 48-64).

3. Claims 31, 38, 43 and 52 are rejected under 35 USC 103 (a) as being unpatentable over Bowie USP 5847690 in view of Perski et al. USP 6762752, Komatsu et al. USP 5657011 and Mackey USP 7463246, as applied in claim 28 and further in view of Kiguchi USP 6630274.

Regarding claim 38, the combination of Boie et al. Perski, Komatsu and Mackey does not explicitly teach the overcoat layer is formed of an organic layer.

Kiguchi teach the composition of the protective layer the same as the

composition of the organic thin film, thus making it possible to prevent crawling or unevenness in the protective film formed on the banks, whereupon color filters for liquid crystal display elements can be provided which exhibit outstanding contrast (Col 4, Lines 19-24).

Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have utilize the protective layer as taught by Kiguchi et al. in the combination' system disclosed by Boie, Perski and Komatsu because this would provide color filters and liquid crystal elements comprising banks that are ideal for methods of manufacturing color filters by filling banks with ink by the ink jet method (Col. 2, lines 29-32).

As to claims 31, 43, 52, the combination of Boie, Perski, Komatsu and Kiguchi teaches the insulating layer is formed of an organic layer (see Kiguchi Col. 4, Lines 19-24).

## *Response to Arguments*

4. Applicant's arguments with respect to claims 28-31, 34-36, 38, 40--43, 46-48, 50-52, 54, and 56-58 have been considered but are moot in view of the new ground(s) of rejection.

## *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

## *Inquiry*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CALVIN C. MA whose telephone number is (571)270-1713. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on 571-272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Calvin Ma
August 13, 2009

/Chanh Nguyen/
Supervisory Patent Examiner, Art Unit 2629